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EXAMINER

AUGHENBAUGH, WALTER

ART UNIT

PAPER NUMBER

1772

DATE MAILED: 08/04/2003

6

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application N .

10/033,457

Applicant(s)

SMITH ET AL.

Examiner

Walter B Aughenbaugh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 29 May 2003.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1,2,5-19,21,22,24-40,42 and 43 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,5-19,21,22,28-40,42 and 43 is/are rejected.
- 7) ☒ Claim(s) 6,7,24-27 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Acknowledgement of Applicant's Amendments***

1. The replacement abstract provided on page 1 of Paper 5 filed on May 29, 2003 has been received and considered by Examiner.
2. The cancellation of claims 3, 4, 20, 23 and 41 in Paper 5 has been acknowledged by Examiner.
3. The amendments made in claims 1, 2, 5, 14-16, 21, 22, 33-35 and 39 given on pages 2-3 and 11-13 of Paper 5 have been received and considered by Examiner.
4. New claims 42 and 43 presented on page 3 of Paper 5 have been received and considered by Examiner.

### ***WITHDRAWN OBJECTIONS***

5. The objection to the abstract made of record in paragraph 7 of Paper 3 has been withdrawn due to Applicant's submission of a replacement abstract in Paper 5.

### ***WITHDRAWN REJECTIONS***

6. The 35 U.S.C. 112 rejection of claims 1, 14-16, 21, 22, 33, 34 and 39 made of record in paragraph 9 of Paper 3 has been withdrawn due to Applicant's amendments in Paper 5. Examiner wishes to point out that the inconsistency of the spelling of polyethylene terephthalate was between claims 16 and 35, and not between claims 16 and 34 as stated on the top of page 5 of Paper 3.
7. The 35 U.S.C. 112 rejection of claims 3 and 20 made of record in paragraph 9 of Paper 3 has been withdrawn due to Applicant's cancellation of claims 3 and 20 in Paper 5.

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8. The 35 U.S.C. 112 rejection of claim 17 made of record in the first line of paragraph 9 of Paper 3 has been withdrawn due to Examiner's inadvertent inclusion of claim 17 in the rejection.

9. The 35 U.S.C. 102(b) rejection of claims 1-7, 9-16, 21-26, 28-35 and 39 as anticipated by Maier et al. made of record in paragraph 11 of Paper 3 has been withdrawn due to Applicant's amendments in Paper 5 and has been replaced with the new 35 U.S.C. 102(b) rejection of claims 1, 2, 5-7, 9-16, 21, 22, 28-35 and 39 provided in this Office Action (Paper 6).

10. The 35 U.S.C. 103(a) rejection of claims 18, 19, 37 and 38 over Maier et al. made of record in paragraph 13 of Paper 3 has been withdrawn due to Applicant's amendments in Paper 5 and has been replaced with the new 35 U.S.C. 103(a) rejection of claims 18, 19, 37 and 38 over Maier et al. provided in this Office Action (Paper 6).

11. The 35 U.S.C. 103(a) rejection of claim 20 over Maier et al. in view of Narita et al. made of record in paragraph 16 of Paper 3 has been withdrawn due to Applicant's cancellation of claim 20 in Paper 5.

#### ***REPEATED REJECTIONS***

12. The 35 U.S.C. 103(a) rejection of claim 8 over Maier et al. in view of Saito et al. has been repeated for the reasons previously made of record in paragraph 14 of Paper 3, taking into account the new rejection of claims 1 and 5 under 35 U.S.C. 102(b) as being anticipated by Maier et al. provided below in this Office Action (Paper 6).

13. The 35 U.S.C. 103(a) rejection of claims 17 and 36 over Maier et al. in view of Harrison et al. has been repeated for the reasons previously made of record in paragraph 15 of Paper 3, taking into account the new rejection of claims 1 and 21 under 35 U.S.C. 102(b) as being anticipated by Maier et al. provided below in this Office Action (Paper 6).

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14. The 35 U.S.C. 103(a) rejection of claim 40 over Maier et al. in view of Hart et al. has been repeated for the reasons previously made of record in paragraph 17 of Paper 3, taking into account the new rejection of claims 1 and 39 under 35 U.S.C. 102(b) as being anticipated by Maier et al. provided below in this Office Action (Paper 6).

### ***NEW OBJECTIONS***

#### ***Claim Objections***

15. Claims 6, 7 and 24-27 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 6 reads identically to claim 5 as amended. Claim 7 depends on claim 6 and therefore also fails to further limit the subject matter of claim 5. Claim 24 depends on claim 23, which was cancelled in Paper 5. Claims 25, 26 and 27 all depend on claim 24 and therefore, claims 24-27 fail to further limit the subject matter of claim 21, upon which claim cancelled claim 23 depended.

### ***NEW REJECTIONS***

#### ***Claim Rejections - 35 USC § 102***

16. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

17. Claims 1, 2, 5-7, 9-16, 21, 22, 28-35 and 39 are rejected under 35 U.S.C. 102(b) as being anticipated by Maier et al.

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In regard to claims 1, 2, 5-7 and 39, Maier et al. teach a shaped article such as a film, sheet, bottle (a container), tube, fiber or rod having a continuous first polymer phase having dispersed therein microbeads of a crosslinked second polymer that are bordered by void space (col. 1, lines 15-19 and col. 7, line 1). Maier et al. teach that acrylic acid, methyl acrylate or methyl methacrylate is a typical monomer for making the crosslinked second polymer for making the microbeads (col. 7, lines 47-52 and Examples 15-18 and 23-26 and col. 17, lines 35-45); the monomers from which the second polymer is derived, acrylic acid, methyl acrylate or methyl methacrylate, therefore, comprise less than 10 wt% styrenic monomers and less than one wt% styrenic monomers as claimed in claim 2 (i.e. 0 wt% styrenic monomers). Note that acrylic acid, methyl acrylate and methyl methacrylate are acrylic monomers, as acrylates are polymers of acrylic acid or its esters, as evidenced by *Hawley's Condensed Chemical Dictionary*. The compositions taught by Maier et al. have superior thermal stability (col. 3, lines 9-11). In regard to the recitation that thermally stable means that the temperature at which the microbeads experience a 2% weight loss is above 270°C, Maier et al. teach the shaped article comprising the microbeads as claimed by Applicant having the same composition as claimed by Applicant, and therefore, the microbeads of Maier et al. are necessarily thermally stable where thermally stable means that the temperature at which the microbeads experience a 2% weight loss is above 270°C, in the absense of objective and convincing evidence to the contrary.

In regard to claims 21 and 22, Maier et al. teach a shaped article such as a film, sheet, bottle (a container), tube, fiber or rod having a continuous first polymer phase having dispersed therein microbeads of a crosslinked second polymer that are bordered by void space (col. 1, lines 15-19 and col. 7, line 1). Maier et al. teach that methyl methacrylate is a typical monomer for

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making the crosslinked second polymer for making the microbeads (col. 7, lines 47-49 and Examples 15-18 and 23-26 and col. 17, lines 35-45); the monomers from which the second polymer is derived, methyl methacrylate, therefore, comprise less than 10 wt% styrenic monomers and less than one wt% styrenic monomers as claimed in claim 22 (i.e. 0 wt% styrenic monomers). Methyl methacrylate is an acrylic monomer (and a methacrylic monomer), as acrylates are polymers of acrylic acid or its esters, as evidenced by *Hawley's Condensed Chemical Dictionary*. In regard to the recitation that the microbeads are made from acrylic crosslinking monomers, Maier et al. teach that the microbeads are made from methyl methacrylate monomers (col. 7, lines 47-49 and Examples 15-18 and 23-26 and col. 17, lines 35-45), which are acrylic crosslinking monomers. The compositions taught by Maier et al. have superior thermal stability (col. 3, lines 9-11). In regard to the recitation that the microbeads are thermally stable meaning that the temperature at which the microbeads experience a 2% weight loss is above 270°C, Maier et al. teach the shaped article comprising the microbeads as claimed by Applicant having the same composition as claimed by Applicant, and therefore, the microbeads of Maier et al. are necessarily thermally stable where thermally stable means that the temperature at which the microbeads experience a 2% weight loss is above 270°C, in the absence of objective and convincing evidence to the contrary.

In regard to claims 9-12 and 28-31, Maier et al. teach that the microbeads have a size of about 0.1-50 micrometers, that the microbeads are present in an amount of about 5-50% by weight based on the weight of the first polymer and that the voids occupy about 2-60% by volume of the shaped article (col. 4, lines 60-65).

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In regard to claims 13 and 32, Maier et al. teach that the polymeric microbeads are coated with a slip agent (col. 12, lines 51-53).

In regard to claims 14-16 and 33-35, Maier et al. teach that the first polymer is a polyester (col. 6, lines 12-17) or a polyolefin such as polypropylene (col. 6, lines 52-53). Maier et al. teach that poly(ethylene terephthalate), which may be modified by small amounts of other monomers, is especially preferred as the first polymer (col. 6, lines 44-46).

***Claim Rejections - 35 USC § 103***

18. Claims 18, 19, 37 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maier et al.

Maier et al. teach the shaped article as discussed above. Maier et al. teach that methyl methacrylate is a preferred monomer for making the crosslinked polymer (col. 7, lines 47-55) and that the crosslinked polymer is crosslinked using a crosslinking agent (col. 7, lines 1-2 and 43-46). Maier et al. fail to explicitly teach that the second polymer is derived from monomers comprising more than 20 wt% of crosslinking monomer. Maier et al. further disclose that the polymer of the microbeads is crosslinked to the extent of having a resiliency or elasticity at orientation temperatures of the matrix polymer such that a generally spherical shape of the crosslinked polymer is maintained after orientation of the matrix polymer (col. 4, line 68-col. 5, line 4 and col. 13, lines 21-37). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have varied the concentration of the crosslinking agent (i.e the crosslinking monomer as claimed) of Maier et al. via routine experimentation in order to achieve the optimal resiliency or elasticity at orientation temperatures of the matrix polymer depending on the monomer used as the monomer from which the second polymer is



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derived and depending on the end user-result, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art in the absence of unexpected results. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

19. Claims 42 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maier et al. in view of Harrison et al.

In regard to claim 42, Maier et al. teach a sheet having a continuous first polymer phase having dispersed therein microbeads of a crosslinked second polymer that are bordered by void space (col. 1, lines 15-19 and col. 7, line 1). Maier et al. teach that acrylic acid, methyl acrylate or methyl methacrylate is a typical monomer for making the crosslinked second polymer for making the microbeads (col. 7, lines 47-52 and Examples 15-18 and 23-26 and col. 17, lines 35-45); the monomers from which the second polymer is derived, acrylic acid, methyl acrylate or methyl methacrylate, therefore, comprise not more than 10 wt% styrenic monomer (i.e. 0 wt% styrenic monomers). Note that acrylic acid, methyl acrylate and methyl methacrylate are acrylic monomers, as acrylates are polymers of acrylic acid or its esters, as evidenced by *Hawley's Condensed Chemical Dictionary*. The compositions taught by Maier et al. have superior thermal stability (col. 3, lines 9-11). In regard to the recitation that the microbeads are thermally stable meaning that the temperature at which the microbeads experience a 2% weight loss is above 270°C, Maier et al. teach the sheet comprising the microbeads as claimed by Applicant having the same composition as claimed by Applicant, and therefore, the microbeads of Maier et al. are necessarily thermally stable where thermally stable means that the temperature at which the microbeads experience a 2% weight loss is above 270°C, in the absence of objective and convincing evidence to the contrary.

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Maier et al. fail to teach that the sheet is a dye diffusion thermal transfer dye receiving sheet. However, Harrison et al. disclose a dye diffusion thermal transfer dye receiving element comprising a support comprising a continuous oriented polymer matrix having dispersed therein microbeads of a cross-linked polymer which are at least partially bordered by void space (col. 2, lines 23-31). Harrison et al. disclose that the dye-receiving element is shaped in sheet form (col. 9, lines 58-60). Therefore, one of ordinary skill in the art would have recognized to have used the sheet of Maier et al. as a dye diffusion thermal transfer dye receiving sheet since it is notoriously well known to use a sheet comprising a continuous polymer matrix having dispersed therein microbeads of a cross-linked polymer which are at least partially bordered by void space such as the sheet of Maier et al. as a dye diffusion thermal transfer dye receiving sheet as taught by Harrison et al.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the sheet of Maier et al. as a dye diffusion thermal transfer dye receiving sheet since it is notoriously well known to use a sheet comprising a continuous polymer matrix having dispersed therein microbeads of a cross-linked polymer which are at least partially bordered by void space such as the sheet of Maier et al. as a dye diffusion thermal transfer dye receiving sheet as taught by Harrison et al.

#### ***ANSWERS TO APPLICANT'S ARGUMENTS***

20. Applicant's arguments on page 6 of Paper 5 regarding the 35 U.S.C. 102(b) rejection of claims 1 and 21 as anticipated by Maier et al. are rendered moot due to the new 35 U.S.C. 102(b) rejection of claims 1 and 21 as anticipated by Maier et al. provided in this Office Action (Paper 6).

Applicant's statement that "the microbeads disclosed in the Examples of Maier et al. do not meet [the limitation that the microbeads have a thermal stability such that the temperature at which the microbeads experience a 2% weight loss is above 270°C]" is unsupported. As stated in the new 35 U.S.C. 102(b) rejection of claims 1 and 21 (Paper 6), Maier et al. teach the shaped article comprising the microbeads as claimed by Applicant having the same composition as claimed by Applicant, and therefore, the microbeads of Maier et al. are necessarily thermally stable where thermally stable means that the temperature at which the microbeads experience a 2% weight loss is above 270°C. While all the Examples may not teach the shaped article comprising the microbeads as claimed by Applicant having the same composition as claimed by Applicant, the disclosure of Maier et al. nonetheless does. In regard to Applicant's reference to the results in Table 2 that "show that microbeads made from methacrylate monomers do not provide the necessary thermal stability, except when employing acrylic crosslinking monomers", methacrylate monomers are "acrylic crosslinking monomers" and therefore, the language of claim 21 does not differentiate the article being claimed in claim 21 from the article taught by Maier et al.

21. Applicant's arguments on pages 7-9 of Paper 5 regarding the remainder of the art rejections have been fully considered but are not persuasive. Applicant's arguments regarding the remainder of the art rejections rely entirely on the added limitation to claims 1 and 21 that "thermally stable" means that "the temperature at which the microbeads experience a 2% weight loss is above 270°C", that has been addressed in the appropriate rejections and in the answer to Applicant's arguments on page 6 of Paper 5 regarding the 35 U.S.C. 102(b) rejection of claims 1 and 21 as anticipated by Maier et al. provided above.

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*Conclusion*

22. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

23. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter B. Aughenbaugh whose telephone number is 703-305-4511. The examiner can normally be reached on Monday-Thursday from 9:00am to 6:00pm and on alternate Fridays from 9:00am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon, can be reached on 703-308-4251. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9310.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

wba  
07/29/03 *WBA*

*Nasser Ahmad*  
**NASSER AHMAD**  
**PRIMARY EXAMINER**  
*Acting SPE*